EXHIBIT 31

Expert Witness Report of
Dr. Eric L. Piza, Ph.D.

In the matter of:

Hunters Capital, LLC, et. al., v. City of Seattle, 2:20-cv-00983-TSZ
Western Dist. of Washington

April 27, 2022

I. Introduction

I have been asked to discuss whether the occupation of streets, sidewalks, and public spaces in Seattle's Capitol Hill neighborhood by private individuals from the night of June 8, 2020, until the morning of July 1, 2020, and the coincident evacuation of the Seattle Police Department's ("SPD's") East Precinct, and subsequent policies adopted by the SPD and Seattle Fire Department to significantly modify their responses to that neighborhood during that time period, resulted increased crime in the neighborhood and surrounding areas in June 2020.

My observations are based on a research study I led, which applied cutting edge statistical methods to assess crime trend changes in and around the CHOP area as compared to statistically similar comparison areas. The study was recently published in the peer-reviewed journal *Criminology & Public Policy*, an official journal of the American Society of Criminology.[i] The full research article is included at the end of this report as an appendix. Data and code to replicate the analysis are publicly available on my personal website.[ii]

Based upon the findings of the rigorous statistical evaluation, I conclude that the CHOP occupation generated a sizable and significant crime increase in the immediate CHOP zone, a 2-block area encompassing the CHOP zone, and the East Precinct service area.

II. Qualifications

I am currently an Associate Professor at John Jay College of Criminal Justice, City University of New York. On July 1, 2022 I will join Northeastern University as Professor of Criminology & Criminal Justice and Director of Crime Analysis Initiatives. I received my PhD from Rutgers University in May 2012. Before entering academia, I served as Research Director for Crime Analytics at Rutgers School of Criminal Justice/Center on Public Security from 2012 to 2013, Geographic Information Systems Specialist for Newark, NJ Police Department from 2007 to 2012, and Research Program Coordinator for Police Institute at Rutgers-Newark from 2003 to 2007. I have maintained an active research agenda throughout my career. This includes publishing 56 peer-reviewed research articles as of the date of this writing. My research has been supported by over $2.8 million in competitive research funding as of the date of this writing, including grants from the Bureau of Justice Assistance, National Institute of Justice, Swedish National Council on Crime Prevention, and the Charles Koch Foundation's Policing and Criminal Justice Reform program. My research accomplishments have been recognized with awards from the American Society of Criminology Division of Policing, Diverse: Issues in Higher Education, Association of Doctoral Programs in Criminal Justice and Criminology, and John Jay College of Criminal Justice. My education, training, and experience is more fully set forth in my curriculum vitae, which is publicly available on my personal website.[iii]

III. Analysis

The geographically focused, time limited nature of CHOP provided an opportunity for a natural experiment to test the effect of the autonomous zone on crime levels. The first step in the analysis involved designating a precise geography as the "intervention area" for the analysis. Given the potentially fluid nature of the CHOP boundary and activity of the autonomous zone

occupants, CHOP's effect on crime was tested in three sperate intervention areas: the CHOP zone, all areas within 2-blocks and including the CHOP zone, and the entirety of the SPD East precinct service area.

CHOP zone boundaries were identified from a map widely reported in popular print media.[iv] The second intervention area included the geography within a radius of 1,304 feet (approximately two blocks) around and including the CHOP zone. The third intervention area was the entirety of the East Precinct service area, to measure the effect the CHOP occupation had within the larger geography. The intervention areas are displayed in Figure 1.

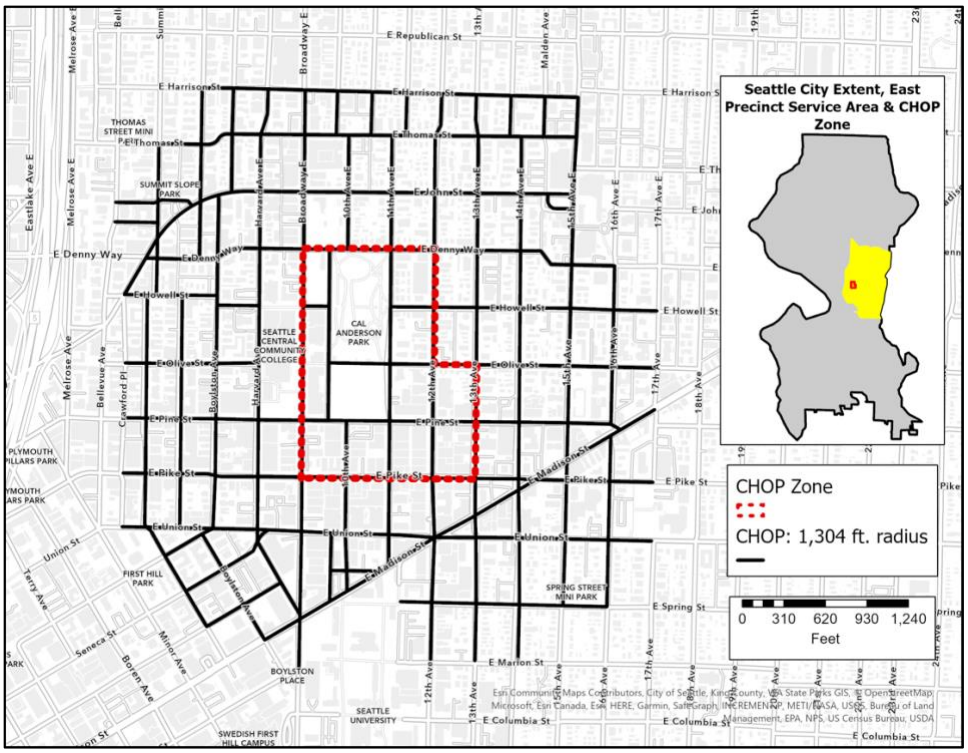

Figure 1: CHOP intervention areas used in the analysis

A key consideration in evaluation research is the nature of the comparison area used to assess changes in the intervention area. Analysis findings are considered to be statistically significant when (and only when) crime trend changes in the intervention area substantially differ from the comparison area. Absent statistical significance, any crime differences may be due to random chance rather than the intervention under study (in this case, the CHOP occupation). However, the comparison area must be similar to the intervention area across variables than may influence crime changes (e.g. prior crime rate, land usage, economic wellbeing, etc.) for results to be valid. The more similar intervention and comparison areas are to one another, the more researchers are making "apples to apples" comparisons. To achieve these goals, my study used a recently developed statistical technique called "microsynthetic control matching" to create three comparison groups that were statistically identical to their respective intervention areas.[v]

Analysis of crime level changes followed the creation of the comparison areas. Most crime data were obtained from the City of Seattle Open Data portal.[vi] Homicide data were obtained via an

official request to the SPD due to these incidents not having x,y coordinates in the open data portal.

Statistically significant crime increases were observed for each of the three intervention areas. The largest increase was observed in the immediate CHOP zone, with the crime total about 132% (90 incidents vs. 38 incidents) higher than the comparison area during the 24-day occupation period. Crime totals were about 77% higher (235 incidents vs. 132 incidents) and about 27% higher (640 incidents vs. 500 incidents) than the comparison area in the 2-block CHOP zone and East precinct service area, respectively. Statistically significant crime increases were observed in the 2-block CHOP zone and East precinct service area from the first week of the occupation. Crime level changes did not reach statistical significance until the fourth week of the occupation in the CHOP zone. Therefore, while damage was already done in the 2-block CHOP zone and East precinct service area, disbanding CHOP earlier may have prevented a significant crime increase from occurring in the immediate occupation zone. Follow-up analyses concluded that no single crime type was responsible for the significant crime increases. Rather, the CHOP occupation resulted in a significant increase in crimes against persons, crimes against property, and crimes against society.

VI. Conclusion

The CHOP occupation represents, to my knowledge, the first manifestation of police abolition at the neighborhood level. The analysis results suggest that significant crime increases can be expected within a timeframe as short as a 24-day period following the removal of police services. The significant crime increase is noteworthy given the short time frame of the CHOP occupation and retreat of police from the area likely making it more challenging for crimes to be reported by citizens and/or proactively discovered by officers. Therefore, the statistical analysis likely underestimates the crime increase.

Prior policing research demonstrates a significant relationship between police presence and crime. A recent evaluation of the effect of police layoffs in Newark, NJ found that overall crime, violent crime, and property crime significantly increased during the post-layoff as compared to a comparison city.[vii] The crime-generating effect of drastic and sudden reductions in police presence has also been demonstrated in research on police strikes.[viii] The police layoff and strike research falls within a larger body of evaluation literature that demonstrates focusing police patrol at high crime places and quickly increasing police presence in response to critical events reduces crime levels within targeted areas.[ix] In consideration of this prior research, the most reasonable hypothesis would have been that abandoning of the SPD East precinct and removing police presence and response functions would lead to a significant crime increase.

Eric L. Piza, Ph.D.
April 27, 2022

VII. Report Citations

[i] Piza, E. and Connealy, N. (2022). The Effect of the Seattle Police-Free CHOP Zone on Crime: A Microsynthetic Control Evaluation. *Criminology & Public Policy*, *21*(1): 35-58. https://doi.org/10.1111/1745-9133.12570
[ii] https://bit.ly/sea-chop
[iii] https://ericpiza.net/
[iv] For example, see https://www.bbc.com/news/world-us-canada-53224445
[v] See section 1.3.4 of the research article for more information on the comparison area creation process.
[vi] https://data.seattle.gov/
[vii] Piza, E., and Chillar, V. F. (2020). The effect of police layoffs on crime: Results from a natural experiment involving New Jersey's two largest cities. *Justice Evaluation Journal*. https://doi.org/10.21428/cb6ab371.1500f255. For a publicly aviable version of this article, see https://bit.ly/pd-layoffs
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VIII. CHOP evaluation research article (Piza & Connealy, 2022)

See next page.

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CRIMINOLOGY & Public Policy

SPECIAL ISSUE ARTICLE

GEORGE FLOYD PROTESTS AND THE CRIMINAL JUSTICE SYSTEM

The effect of the Seattle Police-Free CHOP zone on crime: A microsynthetic control evaluation

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Research Summary: Nightly confrontations occurred between protestors and officers outside of the Seattle Police Department's (SPD's) East precinct in the aftermath of George Floyd's murder. On June 8, 2020, the SPD abandoned the East precinct in an attempt to calm the situation. Following closure of the precinct, the Capitol Hill Occupation Protest (CHOP) took hold in the surrounding 6-block area. The CHOP occupation lasted until July 1, 2020. Over this time period, CHOP operated as an autonomous zone, with police officers not patrolling and generally not responding to calls for police service within the area. We used the microsynthetic control group method to analyze the effect of CHOP on crime during the 24-day occupation. Results indicate crime significantly increased in the CHOP zone, the encompassing two-block area, and the overall East precinct service area.

Policy Implications: The current study found comparatively stronger effects than the general literature on depolicing. The significant crime increase is particularly noteworthy given the short time frame of the CHOP occupation and retreat of police from the area theoretically making it more challenging for crimes to be reported by citizens and/or proactively discovered by officers. This suggests that police abolition, the most extreme form of the police defunding movement, may

significantly compromise public safety. Moving forward, a prudent policy solution may be to simultaneously support the evidence-based crime prevention work of police and community-based institutions. Such an approach may achieve currently desired policing reforms without risking crime spikes that can result from drastic reductions of police presence. Wide-scale adoption of evidence-based policing may provide a vehicle for such meaningful, long-term reform.

KEYWORDS
depolicing, police presence, quasi-experiment, synthetic control

The murder of George Floyd by then-Minneapolis police officer Derek Chauvin on May 25, 2020 propelled immediate protests and calls for police reform around the world. The University of Richmond's Spatial Analysis lab estimated that 1444 individual protest events occurred from May 26, 2020 through August 31, 2020, with about three-quarters (1085) taking place in the United States.[1] Protest activity in Seattle, Washington encapsulated the national climate in 2020. Like many cities, Seattle was home to daily, large-scale protests in the wake of George Floyd's murder. Seattle's protest stood out from the national activity due to their extreme magnitude and duration, particularly in the context of the Capitol Hill neighborhood.

Protestors frequently gathered around the Seattle Police Department's (SPD's) East precinct, with reported confrontations between police and demonstrators occurring nightly. On June 8, 2020, the SPD abandoned the precinct in an attempt to quell the confrontations, resulting property damage, and injuries to both police officers and protestors (Markovich, 2020). An encampment was quickly established in a six-block area encompassing the abandoned precinct. First dubbed the "Capitol Hill Autonomous Zone," the encampment would come to be known as the "Capitol Hill Occupation Protest" (CHOP). CHOP proceeded as an autonomous, police-free zone until July 1, 2020 following a Mayoral executive order for the SPD to disband the CHOP encampment and re-occupy the police station (Markovich, 2020; Reeve & Guff, 2020).

The geographically focused, time limited nature of CHOP provides an opportunity for a natural experiment to test the effect of the autonomous zone on crime. Given the context of CHOP, this study may further be considered a test of police abolition, the most radical proposal advanced in the police defunding movement. We explore crime-level changes in three separate areas: the CHOP zone, all areas within two blocks and including the CHOP zone, and the entirety of the SPD East precinct service area. We use the microsynthetic control group method (Robbins et al., 2017; Saunders et al., 2015) to conduct a case control quasi-experiment, comparing each study area to a statistically equivalent control group comprised of weighted street segments from other areas of Seattle. Results indicate that the CHOP was associated with statistically significant increases in crime across all three study areas. We discuss these results in the context of police practice and potential reforms.

1 | REVIEW OF RELEVANT LITERATURE

1.1 | Protests, depolicing, and crime

Public protests of police use of excessive force have a prominent place in American history (Maguire & Oakley, 2020). Empirical research on protests has generated insight on important issues such as the street-level activism activities of protestors (Cobbina, 2019), crowd-control tactics used by police (Maguire & Oakley, 2020), situational factors that transform peaceful protests into violent clashes (Nassauer, 2016), and the underlying structural challenges and resulting grievances that motivate the behavior of violent protestors (Newburn, 2021). Research has comparatively less to say about the effect of protests on subsequent crime levels.

Public protest is a constitutionally protected activity that does not inherently generate crime or serious public disorder. Any increase in crime would have to be explained by alternative factors given the vast majority of public protest events are peaceful (Cassell, 2020). A potential mechanism recently explored in the literature is the tangential impact mass protests can have on the crime control strategies of police. The cumulative body of policing research demonstrates that police can be more effective when they are proactive, not reactive; focus on places not just people, and; tailor their actions to identifiable problems rather than employ a "one-size-fits-all" application of general strategies (Lum et al., 2011; Lum & Koper, 2017; Weisburd & Eck, 2004). Such activities more effectively disrupt crime opportunities than the standard policing model that relies on reactive, offender-based responses (Sherman, 2013). Ratcliffe et al. (2011) described officers engaged in focused, place-based patrol as a "certainty-communicating device" that alerts motivated offenders to the heightened risk of offending in the area. This provides the "certainty of punishment" prior research identifies as necessary for deterrence effects to take hold (Durlauf & Nagin, 2011).

The place-based policing literature shows that effective interventions have employed a wide range of tactics. Piza's (2018) review of the relevant literature found numerous examples of targeted policing interventions emphasizing increases in law enforcement activities as well as conspicuous police presence/situational crime prevention activities in lieu of increased enforcement. Such research findings point to two separate (but sometimes overlapping) crime prevention roles of the police: apprehension agents and sentinels (Nagin, 2013). When acting in their sentinel role, police provide the capable guardianship Cohen and Felson (1979) argue is necessary to disrupt situational crime opportunities (Nagin et al., 2015). When considering the cumulative body of research, the visible presence of officers is as important a consideration as the enforcement activities officers engage in.

Rosenfeld et al. (2021) analyzed crime rates in 34 U.S. cities (including Seattle) from January 2017 through December 2020. Results of structural break tests found a significant increase in violent crime in 2020, with most property and drug crime types decreasing during this same time span. The largest increase was observed for homicide, which was 30% higher in 2020 than 2019 and rose in 85% of the sample cities. Homicide, as well as violent crime more generally, spiked around June 2020, well after the COVID-19 pandemic began and coinciding with mass protests in response to the murder of George Floyd. However, Rosenfeld and colleagues (2021) note that violent crime rates early in the pandemic may have been reflective of decreased mobility due to stay-at-home orders, which became more relaxed by the summer of 2020. Furthermore, the pandemic may have strained institutions charged with violent offenses, such as the police, courts, hospitals, emergency medical services, and community-based violence prevention groups.

In a follow-up to Rosenfeld and Lopez's (2020) preliminary report on the 2020 crime increase, Cassell (2020) attempted to uncover causal factors of the homicide increase through an analysis of Chicago, Minneapolis, Milwaukee, New York City, and Philadelphia. Cassell (2020) argued that depolicing was the most empirically valid explanation, as activities such as vehicle stops, pedestrian stops, and arrests declined around the same time as the homicide spike. Cassell (2020) contextualized 2020′s depolicing in terms of a "Minneapolis effect," with police being redeployed to manage the protests in cities across the United States, diverting them from directed patrols and other activities that may deter the carrying of illegal firearms. Cassell (2020) contends other explanations do not enjoy as much empirical support. The homicide spike was well above ordinary seasonal variation, firearm purchases peaked months before the homicide spike, and 9-1-1 calls (a measure of citizen perceptions of police legitimacy) did not significantly change at any point over the study period. However, it should be noted that in response to Cassell's analysis, Rosenfeld (2020) argued that the cause of the 2020 homicide spike was inconclusive.

Current research mirrors efforts undertaken following the 2014 police shooting of Michael Brown in Ferguson, MO. In the aftermath of Ferguson there was speculation that widespread protest activity led to a crime increase in the United States. Pyrooz et al. (2016) conducted the first inquiry on such a "Ferguson Effect," analyzing monthly Part 1 crime data for 81 large U.S. cities during the 12 months prior to and following August 2014. Results indicated no changes in overall, violent, or property crime trends; robbery, conversely, significantly increased. Changes in homicide were heterogeneous across social composition, with cities exhibiting higher pre- and post-Ferguson violent crime rates, a greater composition of black residents, and greater sociodemographic disadvantage experiencing steeper homicide increases.

Studies following Pyrooz et al. (2016) incorporated police enforcement actions alongside crime rates to more directly measure potential depolicing effects post-Ferguson. Cassell and Fowles (2018) analyzed potential causes of the 2016 homicide spike in Chicago, which increased 58% over the 2015 level. Cassell and Fowles (2018) presented depolicing as the most likely explanation of the increase, with regression models controlling for 12 additional covariates finding street stops exhibited a statistically significant negative relationship with homicides, fatal shootings, nonfatal shootings, and total shootings. Cassell and Fowles (2018) argued a consent decree between the American Civil Liberties Union and Chicago Police Department was the most likely explanation for the decrease in stops.

Cassell and Fowles's (2018) observation on consent decrees echoes a later analysis conducted by Devi and Fryer (2020). Devi and Fryer (2020) analyzed the effect of 42 "pattern-or-practice" investigations conducted by federal and state governments (the precursor to a consent decree) on crime. Results found investigations not preceded by "viral" incidents of police use of deadly force led to statistically significant reductions in homicide and total crime. All investigations preceded by viral incidents, conversely, led to large and statistically significant increases in homicide and total crime. Devi and Fryer (2020) identified abrupt changes in the quantity of police activities as the leading hypothesis for the significant increase. Beginning the month following announcement of a "pattern-or-practice" investigation, police-civilian interactions decreased by almost 90% and 54% in Chicago, IL and Riverside, CA, respectively, and self-initiated police activities decreased by 46% in St. Louis, MO.

Rosenfeld and Wallman (2020) analyzed the 53 largest U.S. cities that had at least 20 homicides in 2010. Rather than looking for differences in arrest levels between the pre- and post-Ferguson time periods, Rosenfeld and Wallman (2020) analyzed the general relationship between arrests and homicides for the period from 2010 to 2015. They found monthly homicide rates oscillated from 2010 to 2014, but jumped by 15.6% in 2015. Arrest rates decreased between 2014 and 2015

in nearly every city included in the analysis, which is consistent with the depolicing hypothesis. However, Rosenfeld and Wallman's (2020) regression analysis found homicide rates were not significantly associated with arrest rates (for any offense type). The lack of relationship between enforcement and crime echoed the findings of Shjarback et al. (2017), who found that significant reductions in stops, searches, and arrests had no appreciable effect on crimes rates across 118 police departments in Missouri.

1.2 | Police defunding

While "defund the police" became a rallying cry following the murder of George Floyd, the precise nature of "defunding" differs widely depending on whom you ask (Koziarski & Huey, 2021). On one end of the spectrum, reformers argue resources should be reallocated from policing to social work and/or public health approaches. This perspective contends that better funding community-based prevention services would reduce the need for police to respond to issues related to these social issues, as well as the subsequent crime problems they may generate.

The notion that public safety can be maintained through activities not involving the police is popular in many circles—including police leadership. Vitale (2017, 28) quoted then Dallas, Texas Police Chief David Brown as saying:

> We're asking cops to do too much in this country… Every societal failure, we put if off on the cops to solve. Not enough mental health funding, let the cops handle it… Here in Dallas we got a loose dog problem; let's have the cops chase loose dogs. Schools fail, let's give it to the cops… That's too much to ask. Policing was never meant to solve all of those problems.

Police have largely supported recent reforms that reduce police involvement in certain situations, such as approaching mental health episodes and the current opioid epidemic as public health, rather than criminal justice, issues (Koziarski & Huey, 2021). Evidence-based policing researchers have also advocated for more holistic responses to crime. For example, Weisburd (2011) argued the nature of problems underlying certain crime hot spots mean entities other than the police may be best positioned to promote public safety in the area. To our knowledge, the most recent empirical evaluation in support of this perspective is the study by Caplan et al. (2021), which found an intervention that leveraged a range of municipal agencies alongside police—including the transit authority, fire department, and code enforcement—generated significant crime reductions within target areas in Kansas City. These types of strategies fit into the original vision of problem-oriented policing advanced by Goldstein (1979, 1990), which contended that many crime problems can be handled through strategic partnerships with community, not-for-profit, and other government agencies.

A recent report by the John Jay College Research Advisory Group on Preventing and Reducing Community Violence (2020) reviewed and summarized research on policies and programs known to reduce community violence without relying on police. The report highlighted 63 evidence-based interventions across seven broad strategies: improving the physical environment, strengthening anti-violence social norms and peer relationships, engaging and supporting youth, reducing substance abuse, mitigating financial stress, reducing the harmful effects of the justice process, and confronting the gun problem.[2] A similar review of the research was conducted by Lehman (2021). Lehman (2021) noted that certain approaches that supplement police with civilian agents,

such as violence interrupters, enjoy general support from the empirical research, but reported effects are too inconsistent for such programs to be expected to largely replace police work. Lehman (2021) suggested such approaches should be considered complementary practices that can offset stress on police forces. Lehman (2021) called for police to embrace practices pertaining to changing the built environment, using neighborhood watch and CCTV as non-police guardians, and targeting problematic alcohol use.

The potential effect of the more drastic proposals of police defunding, which call for the abolition or large-scale downsizing of the police institution, is arguably more elusive. The most recent systematic review and meta-analysis of research on changes to police force size found a small, nonsignificant effect size on crime (Lee et al., 2016). Studies conducted since Lee et al.'s (2016) review have found significant negative relationships between police force size and crime across a range of crime types, inclusive of murder, rape, robbery, and part-1 property crime (Chalfin & McCrary, 2018; Kaplan & Chalfin, 2019; Mello, 2019).

In contextualizing this literature, it is important to note that most studies test the effect of incremental changes in police force size. A noteworthy exception is a recent study conducted by Piza and Chillar (2020). Owing to the economic recession beginning in 2008, the Newark Police Department terminated 13% of the police force while the neighboring Jersey City Police Department averted layoffs by agreeing on a new contract with the police union. Overall crime, violent crime, and property crime significantly increased during the post-layoff period in Newark as compared to Jersey City. Piza and Chillar's (2020) evaluation echoes findings of earlier research on police strikes, which caused similarly sudden reductions in police force size as layoffs (see Sherman & Eck, 2002). However, while research has typically found major increases in crime following police strikes, the lack of comparable control conditions prevents any definitive conclusions regarding the effect of police strikes (Sherman & Eck, 2002).

At this point, we should acknowledge arguments equating police defunding solely to drastic police force reductions amount to straw man arguments as proponents advocate for a 1-to-1 transfer of funds from policing to social services to better support the public safety capacity of communities (Cobbina, 2019; Goff, 2021; Vitale, 2017). The challenge resides in determining how to effectively replace police presence. Increases in social services would have to be timed in a manner that immediately coincides with police force reductions and be delivered via programmatic vehicles with demonstrated records of success to generate the desired effects (Goff, 2021). Complications further arise from the fact that a small minority of calls for police service may constitute the types of incidents that could be addressed by social service agencies alone. Ratcliffe (2021b) found that only about 8% of calls for police service in Philadelphia in 2019 related to medical or public-health related events with about 20% of such incidents likely not predictable from the initial call type handled by police dispatch. Lum et al. (2021) similarly found that the vast majority of calls for police service were not obviously transferable to other organizations or government sectors across nine U.S. police agencies.

1.3 | Methodology

1.3.1 | Study setting

Seattle, Washington has a population of 753,675 according to the most recent U.S. Census Bureau estimates, making it the 18th largest city in the country. Slightly over 67% of the population identifies as White alone, with about 15% of the population identifying as Asian alone. Black and Latino

residents each account for approximately 7% of the population. Seattle has a median household income of approximately $92,000, with 11% of residents living below the poverty line. The median household income is substantially higher than the national level ($62,843) with the poverty rate comparable to national figures (10.5%). According to the Uniform Crime Report, Seattle had a 2019 violent crime rate of 585 per 100,000 residents and a property crime rate of 4496 incidents per 100,000 residents, which rank 9th and 14th highest, respectively, of all Washington State jurisdictions.

On June 8, 2020, protest activities reached a boiling point in Seattle's Capitol Hill neighborhood, with protestors gathering nightly at the SPD's East precinct following the murder of George Floyd. The protests frequently turned confrontational, with protestors setting fires and causing other property damage and SPD officers using riot control weapons in an attempt to control the scene (Nagesh, 2020). In an attempt to deescalate the situation, and prevent further property damage and injury to both police officers and protestors, the SPD surprisingly (and suddenly) abandoned the East precinct on June 8, 2020 (Markovich, 2020; Ratcliffe, 2021a). This led to the formation of CHOP in the immediate surrounding area. Protesters created a barricade around the perimeter of the area, using wooden pallets and other readily available objects, which acted as a makeshift jurisdictional boundary for CHOP (Eustachewich, 2020). An encampment was established within nearby Cal Anderson Park. The surrounding streets housed community events such as movie screenings and poetry readings, with pop-up art installations and vegetable gardens lining the area (Eustachewich, 2020; Royale, 2020). Seattle Mayor Jenny Durkan was quoted as comparing CHOP to a "block party atmosphere" that could usher in a "summer of love" (Eustachewich, 2020). Teams of civilian volunteers formed an armed security detail and medic team for the purpose of minimizing reliance on city agencies (Reeve & Guff, 2020; Royale, 2020).

The CHOP occupation enjoyed direct support from the municipal government, with the utilities department placing portable toilets within the zone to support the protestors (Ratcliffe, 2021a, 24:00–31:00). Seattle police officers were sent an email on June 12, 2021 stating they should not respond to calls within the CHOP zone unless it was a "mass casualty event" (Reeve & Guff, 2020). Later-released emails and text messages between city officials further contextualized the absence of police in CHOP (Markovich, 2020). In a vivid illustration of SPD's lack of involvement in the zone, the Seattle Fire Chief communicated directly with a local rapper who headed the volunteer CHOP security team to request assistance with securing the police precinct after a break-in at the facility (Markovich, 2020). The CHOP protest represented an extreme version of the "Minneapolis effect" identified by Cassell (2020): a dramatic refocusing of police attention in response to protest activity. In the case of Seattle, the refocusing of police attention occurred in the opposite direction, with the CHOP occupation shifting police presence *away* from the protest zone. On July 1, 2020, Mayor Durkan ordered SPD to disband occupants from the CHOP zone and reoccupy the police station (Markovich, 2020; Reeve & Guff, 2020). The order came after 4 shootings (2 of which were fatal) occurred over a 10-day period, which spurned increased calls for CHOP's closure (Johnson, 2020).

CHOP generated widely differing assessments from residents and public officials in Seattle (Ratcliffe, 2021a, 24:00–31:00). Where some saw a lawless area that threatened public safety, others saw a vibrant community advancing social justice (Kiley et al., 2020; Nagesh, 2020). Contrasting perspectives were also evident in the differing headlines of news stories portraying CHOP in either a negative ("…from socialist summer camp to deadly disaster"; Eustachwich, 2020) or positive ("…Capitol Hill: a community is taking shape"; Royale, 2020) context. The fall of CHOP was met with the same level of disagreement. Some Seattle residents and officials saw the closure

as an example of police violence against peaceful protestors, while others applauded what they perceived as a return to safety and order (Kiley et al., 2020; Nagesh, 2020).

1.3.2 | Data sources

Most data for the current study were obtained from the City of Seattle Open Data portal.[3] All data were processed for the analysis in ArcGIS Pro 2.7. Crime data were downloaded for the period from 6/1/2019 to 7/1/2020. This allowed us to measure crime occurrence during the 24-day CHOP occupation relative to the 372 days prior to the CHOP period to account for seasonal trends in crime (matched as 62 six-day "weekly" crime count totals). All crime incidents were successfully mapped using *x*, *y* coordinates provided in the data tables. The recorded "start" day and time of crime occurrence was used to assign crime incidents to their respective 6-day period. The "start" data point was used in lieu of the police reported time as some crimes may have not been formally reported to police during the CHOP period. The "start" classification allows for retroactive assignment to when the crime actually occurred.

Six-day calls for service totals were calculated for each beat. The calls for service data did not include *x*, *y* coordinates or unique address identifiers and was only attributable to the beat the call was sourced in. Thus, this measure was used as a covariate in the matching sequence to assess call volume across police beats instead of as an outcome measure. For the analysis, each street segment was assigned the calls for service totals of its encompassing beat.

All active business licenses were downloaded and successfully mapped using *x*, *y* coordinates. We extracted consumer-facing business from this master file, which comprised businesses classified across four typologies: retail, restaurants, food/drug stores, and services (Kane et al., 2017; Kim & Hipp, 2021). Business types were identified by their 6-digit North American Industry Classification System (NAICS) code.[4] The two business measures enabled the measurement of two separate potential effects: increased level of foot traffic related to consumer activity and general ambient population generated by employees of corporate institutions.

Sociodemographic data for Seattle were obtained from the U.S. Census Bureau. A GIS shapefile of Seattle block groups was downloaded from the TIGER/Line database.[5] Block group population characteristics (5-year estimates) were obtained from the Census Bureau's American Community Survey (ACS). ACS tables were joined to the block group shapefiles with each street segment assigned the values of its encompassing block group.

1.3.3 | Unit of analysis and intervention areas

Individual street segments in Seattle (n = 23,806) were used as the unit of analysis. Street segments are commonly incorporated in contemporary crime and place research because they are small enough to minimize associated spatial assignment errors (Weisburd et al., 2004), while simultaneously large enough to capture the unique microcommunity composition of each unit (Weisburd et al., 2012). Research has also demonstrated street segments explain a higher proportion of variability in crime incidents than meso- or macro-level units (Schnell et al., 2017; Steenbeek & Weisburd, 2015).

Three different intervention areas were operationalized in the study (see Figure 1). The CHOP zone comprised the 36 street segments that were within the confined boundaries of the occupied area. This area was meant to measure the immediate spatial effect of CHOP. The second

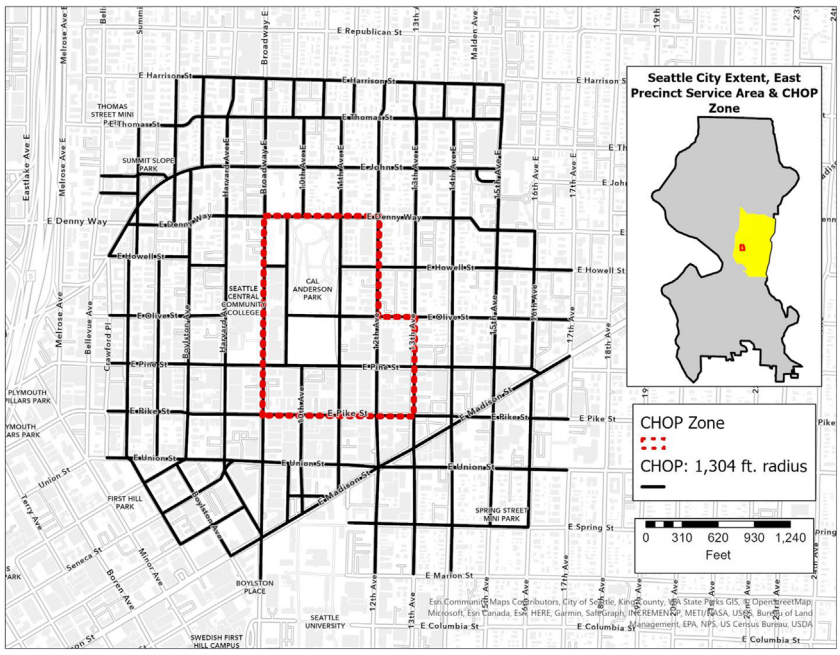

FIGURE 1 CHOP intervention area operationalizations [Color figure can be viewed at wileyonlinelibrary.com]

intervention area included all street segments with centroids falling within a radius of 1304 feet (approximately two blocks) around the CHOP zone and included 273 unique street segments. This area was meant to operationalize the spatially lagged effect of CHOP, including the zone itself as well as the spatially contiguous street segments. Lastly, the entirety of the East precinct service area was examined and contained 2860 street segments. This operationalization was meant to reflect the more meso-level effects of the precinct closure, as police officers assigned to the East precinct were deployed from precincts in other areas of the city during the CHOP occupation. This theoretically could minimize police presence and increase police response times throughout the entirety of the service area.

1.3.4 | Microsynthetic control matching

Leveraging a case-control design is particularly important in the context of the current study period, with the COVID-19 pandemic and social unrest potentially influencing crime levels throughout 2020 (Rosenfeld et al., 2021). An evaluation of CHOP must ensure that observed changes in crime counts outpaced what occurred in other parts of Seattle. To ensure sufficient comparability across the CHOP intervention areas and the control areas, the microsynthetic matching approach was used.

The microsynthetic matching procedure has particular utility in evaluation research where a true counterfactual group is difficult or impossible to accurately compute (Abadie et al., 2010, 2015; Robbins et al., 2017). As a derivative of synthetic control matching (Abadie & Gardeazabal, 2003), microsynth was designed to be compatible with microlevel units of analysis (Robbins & Davenport, 2021). The microsynthetic control method has been recently applied to study

place-based interventions such as the legalization of recreational marijuana dispensaries (Connealy et al., 2020), directed police patrols (Rydberg et al., 2018), police substations (Piza et al., 2020), and drug market intervention strategies (Saunders et al., 2015).

Microsynth uses pretarget period outcome trends and selected covariates to create an empirically similar group of weighted controls that are equal (or nearly equal) to the target conditions. The weighting and pooling considerations allow microsynth to generate an approximately equivalent control group even in instances where there is no sufficient control unit(s) to match the target cases. This ensures unique cases are not dropped from the analysis (Robbins & Davenport, 2021). In the current study, each of the delineated street segments is clustered together and spatially contiguous within a larger, aggregate intervention area. As a result, it is more appropriate to generate matches and evaluate a total intervention area crime change statistic as opposed to other matching methodologies that match individual street units (Piza, Wheeler, Connealy, & Feng, 2020).

The present study involved the use of approximately one year's worth of pre-CHOP crime data matched across 62 six-day crime count blocks. Nine additional potential crime confounders were added to the matching sequence, resulting in 71 matching constraints. The resultant 24-day CHOP-period was examined for potentially significant changes in crime levels across four additive 6-day blocks (week 1, week 1–2, week 1–3, week 1–4) to trace crime trends across the entirety of the outcome period in week-to-week increments.

Due to the high number of matching periods, covariates, and model constraints, all covariates were allowed to conform to "time-variant" matching standards, which do not require an exact match for the model to produce a control group.[6] This distinction allows the model to create a weighted control group that is effectively similar to the target group in instances where an exact match cannot be generated for the target group, which can occur when there is a high number of matching criteria and time periods, a small number of target units, and sparsity in the data (low aggregate crime totals at the 6-day level in microspatial delineations) (Ferman, 2020; Ferman & Pinto, 2021; Robbins & Davenport, 2021). When pretarget conditions cannot be matched exactly, a lower-ranking matching requirement through quadratic programming is used to produce the best possible control group (Ormerod & Wand, 2020). The secondary microsynth model creates the best possible, nearly exact, weighted control group without dropping matching considerations included in the model such as the number of target units, the number of pretarget time periods operationalized, or other covariates.

The secondary microsynth model was necessary for the CHOP zone only model due to the computationally intensive requirements and the low number of target features (6-day crime counts across only 36 target street segments). The covariates and pretarget crime count were not able to achieve an exact match in some of the 6-day blocks across targets and controls (decimal-level differences in many instances). Though, the total aggregated count of crime across all 62 six-day blocks was nearly equivalent between the two pools.[7] The other matching covariates were also nearly exact in their matching efficacy in the CHOP zone only model. The other two CHOP zone delineations (two blocks and precinct service area) achieved an exact match between target and control groups across all model considerations.

In total, 10 covariates were incorporated in the microsynth matching algorithm as informed by prior crime-and-place research (Braga et al., 2012; Connealy et al., 2020; Connealy, 2021; Piza et al., 2020):

1. Preintervention crime counts: 6-day crime count totals were matched on for the identified target zone from 6/1/2019 to 6/7/2020 (62 separate 6-day matching blocks).

2. High-crime units: street segments with a pre-CHOP crime total in the 80th percentile or above were dichotomously identified and operationalized as preintervention high-crime units.
3. High-crime location quotient: using values ranging from –1 to 1, this measure accounts for the clustering of identified high-crime units within the same block group as a measure of crime density (see Connealy et al., 2020; Piza et al., 2020).
4. High call for service beat: SPD beats were dichotomously identified if their total volume of calls for service was in the 80th percentile as a potential proxy for police-related activity and presence.
5. Business total: the total count of commercial business establishments on each unit (aggregated in the matching model as the target total) serves as a measure of land usage and activity.
6. Consumer-facing establishment total: the total count of consumer-facing establishments on each unit (aggregated in the matching model as the target total) designed to draw in foot traffic.
7. Principal or arterial roadway: units were dichotomously identified if the street segment unit was a principal or arterial roadway or not.
8. Street length: the total length of all segments was summed in the specified target zone.
9. Concentrated disadvantage index: the standardized percentages of the percent residents receiving public assistance, percent families living below poverty line, percent female headed households, percent unemployed, and percent of population under 18 were summed and dichotomously operationalized as the total number of units above/below the mean level of disadvantage.
10. Demographic index: the standardized percentage of percent non-White, percent of residents aged 15–29, percent of vacancies, and percent of owned/rented homes at the block group level were summed and operationalized dichotomously as the total number of units above/below the mean.

The matching model performed well across each target zone delineation, although the efficacy and efficiency observed increased as the target zone grew in size. The CHOP two-block and precinct service area models were able to produce an exact match across all constraints, likely owing to less sparsity across the 6-day crime count totals. Cumulative target and control totals are depicted in Table 1.[8]

1.3.5 | Outcome variables

To determine the effect of CHOP on crime, a case control pre-/postanalytical design was used. Six-day crime counts dating back over one calendar year were used to mimic pre-CHOP crime trends in the intervention areas. All recorded crime types were aggregated into a 6-day crime count total to measure potential changes pre- and post-CHOP for several reasons. First, with low sample sizes and frequencies at the street-segment level, there is a high degree of sparsity for crime occurrence even when aggregating to zone totals (e.g., there are only 36 street segments in the CHOP zone comprising 0.15% of Seattle's total street segments). The microsynthetic control matching model performs more effectively when there are less zeroes in the dataset to generate matches on. Aggregating the total count of crimes for a 6-day period reduces the number of recorded zeroes and extremely low frequencies in the intervention zones. Second, it was important to match on 6-day

TABLE 1 CHOP zone targets and weighted control areas balance table

	CHOP zone		CHOP zone—two blocks		CHOP zone—service area	
Variable	**Targets**	**Controls**	**Targets**	**Controls**	**Targets**	**Controls**
Targets (units)	36	36	273	273	2860	2860
Total crime (matched counts summated)	848	850.15	3283	3283	11,507	11,507
High-crime units	31	31.95	189	189	804	804
High-crime location quotient	6.38	6.25	18.47	18.47	93.12	93.12
High CFS beat	23	21.53	107	107	292	292
Business total	461	461.33	1793	1793	8527	8527
Consumer establishment total	154	153.53	545	545	2003	2003
Principal or arterial roadway	0	0	21	21	196	196
Street segment length	13,255	13255.40	85,778	85,778	1,117,454	1,117,454
Concentrated disadvantage index	36	32.26	226	226	1387	1387
Demographic index	3	3.60	66	66	1259	1259

Note: The crime counts were matched for the pre-CHOP period using 62 six-day weekly crime blocks. The weekly crime numbers for the target and control units were summated into a "Total Count" for table length considerations. A full matching table is available in the technical Appendix. It is important to note that the CHOP zone only model included weekly variation across target and control preperiod crime levels. The variations were slight, and ultimately the total level of crime was balanced to near equivalence in the aggregated count across the two samples. The other two CHOP delineations achieved an exact match for each 6-day block and total aggregated count.

crime trends to monitor potential changes in the 24-day postperiod, which is an exceptionally short postperiod.

Matching on total crimes per 6-day period required 62 individual blocks in the preperiod to be effectively matched and balanced, while parsing out the crime types would have doubled (e.g., person, property) or tripled (e.g., person, property, society) that count. Lastly, all potential crime occurrences in the CHOP zone are relevant and important. In a time period of autonomous governance, it is necessary to determine if the total level of crime shifted in a meaningful way. It is also very difficult to assume or speculate about what crimes may have been facilitated by the nature of the CHOP zone, so all crimes were included.[9] Post hoc descriptive statistics were used to revisit and uncover potential trends in specific types of crime that may have drove the observed shift.

To evaluate the potential change in crime following the establishment of the CHOP zone, four micro-postperiods were additively sequenced to consider the week-to-week to crime levels. The CHOP zone remained autonomously governed for 24 days, which led to the specification of the four 6-day periods. The first period spanned from 6/8/2020 to 6/13/2020, the second period included 6/8/2020 to 6/19/2020, the third period included 6/8/2020 to 6/25/2020, and the fourth period encompassed the entirety of the CHOP occupation from 6/8/2020 to 7/1/2020. This design helps to account for the specific time point a potentially volatile shift emerged within the data during the postperiod.

TABLE 2 Crime change estimates, full study period (6/8/20–7/1/20)

Area	Target crime	Control crime	Difference	*p*.	[Lower]	[Upper]	Perm *p*.
CHOP zone***	90	38.64	51.36 (132.9%)	0.001	21.10 (54.6%)	96.96 (250.9%)	0.000
CHOP zone—two blocks***	235	132.42	102.58 (77.5%)	0.000	43.81 (33.1%)	180.67 (136.5%)	0.000
CHOP zone—precinct***	640	500.81	139.19 (27.8%)	0.000	67.59 (13.5%)	219.80 (43.9%)	0.000

***$p < 0.001$.

Note: The permutation *p*. value was calculated across 999 permutation tests.

1.3.6 | Statistical analysis

The effect of CHOP on crime was determined using the R package *microsynth* (Robbins & Davenport, 2021; Robbins et al., 2017). Microsynth uses a weighted least squares regression model to test for significant differences between the observed postperiod target group outcome and the projected control group outcome. The model then produces an overall "target effect" statistic that articulates the change in crime following the specified intervention point as a potential postperiod difference. The target effect is calculated with the following formula:

$$Target\,effect = (\sum_{jt=1}^{Target} Yjt) - (\sum_{jt=1}^{Control} w_j \times Y_{jt})$$

with Y indicating the outcome (crime), j depicting the units in the intervention area, and t denoting the time specification (6-day matching preperiods and postperiod aggregations over the study period). The microsynth model identifies the difference between all of the aggregated target units (CHOP zones) corresponding outcome level (crime) for the intervention period (24 days) by subtracting the weighted outcome sum of the control units over the same time period, which are reflected as a single, aggregate control unit.

Microsynth further allows for the results to be compared to an iterative series of permutation-based placebo tests. The permutations allow for a robustness check on the observed effect by modeling the results against random "target" applications to determine if the observed results remain significant (Abadie et al., 2015). Each permutation test selected a randomized set of controls to operationalize as the target group segments, and 999 unique iterations were conducted to produce *p*. values that indicate if the observed results from the CHOP zone delineation models were significant against random target applications (Carsey & Harden, 2014). The permutation analyses provide added statistical rigor by determining the significance of the model and rejection of the null against random chance across 999 trials. The use of permutations with microsynth also contributes to the scope of *p*. value interpretation, with 999 permutations corresponding to the order of 1/1000.[10]

2 | RESULTS

Results of the synthetic control estimates for the 24-day CHOP occupation are presented in Table 2. For each target area, postperiod crime-level differences from the weighted control are presented alongside the 95% confident intervals, the observed CHOP zone model *p*. value, and the *p*. value derived from the 999 permutation tests when applicable. The permutation *p*. value can be used as further evidence of the statistical significance of any observed effects.

TABLE 3 Crime change estimates, weekly periods

Area & week	Target crime	Control crime	Difference	*p*.	[Lower]	[Upper]	Perm *p*.
Week 1 (6/8/20–6/13/20)							
CHOP zone	9	11.25	−2.25 (−20.0%)	0.626	−7.62 (−67.7%)	11.06 (98.3%)	–
CHOP zone—two blocks**	50	18.23	31.77 (174.3%)	0.002	10.24 (56.2%)	69.54 (381.5%)	0.000
CHOP zone—precinct	122	102.82	19.18 (18.7%)	0.192	−7.59 (−7.4%)	53.33 (52.0%)	–
Week 1–2 (6/8/20–6/19/20)							
CHOP zone	27	23.60	3.40 (14.4%)	0.648	−8.36 (−35.4%)	24.27 (102.8%)	–
CHOP zone—two blocks***	99	41.27	57.73 (139.9%)	0.000	27.98 (67.8%)	100.23 (242.9%)	0.000
CHOP zone—precinct*	262	213.20	48.8 (22.9%)	0.018	9.16 (4.3%)	95.26 (44.7%)	0.004
Week 1–3 (6/8/20–6/25/20)							
CHOP zone	49	32.66	16.34 (50.0%)	0.099	−1.83 (−5.6%)	45.20 (138.3%)	–
CHOP zone—two blocks**	153	97.76	55.24 (56.5%)	0.007	10.46 (10.7%)	118.50 (121.2%)	0.005
CHOP zone—precinct*	435	362.25	72.75 (20.1%)	0.012	15.56 (4.3%)	138.26 (38.2%)	0.004
Week 1–4 (6/8/20–7/1/20)							
CHOP zone***	90	38.64	51.36 (132.9%)	0.000	21.10 (54.6%)	96.96 (250.9%)	0.000
CHOP zone—two blocks***	235	132.42	102.58 (77.5%)	0.000	43.81 (33.1%)	180.67 (136.5%)	0.000
CHOP zone—precinct***	640	500.81	139.19 (27.8%)	0.000	67.59 (13.5%)	219.80 (43.9%)	0.000

*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.
Note: The permutation *p*. value was calculated through 999 permutation tests. The permutation tests are designed to situate the observed significance of the model results against random target applications. Thus, permutation values are only reported for significant model results.

Statistically significant crime increases were observed for each of the three intervention areas relative to their subsequent permutation tests. The largest increase was observed in the immediate CHOP zone, with the crime total 132.9% higher than the weighted control area during the 24-day occupation period (90 incidents vs. 38.64 incidents). In the two-block CHOP zone, crime totals were 77.5% higher than the weighted control area (235 incidents vs. 132.42 incidents). In the overall East precinct service area, crime totals were 27.8% higher than the weighted control area (640 incidents vs. 500.81 incidents)

Table 3 and Figure 2 display how the aforementioned crime increases unfolded over time. Significantly heightened crime levels were observed from the first week in the two-block area. Increases did not achieve statistical significance until later in the study period for both the CHOP

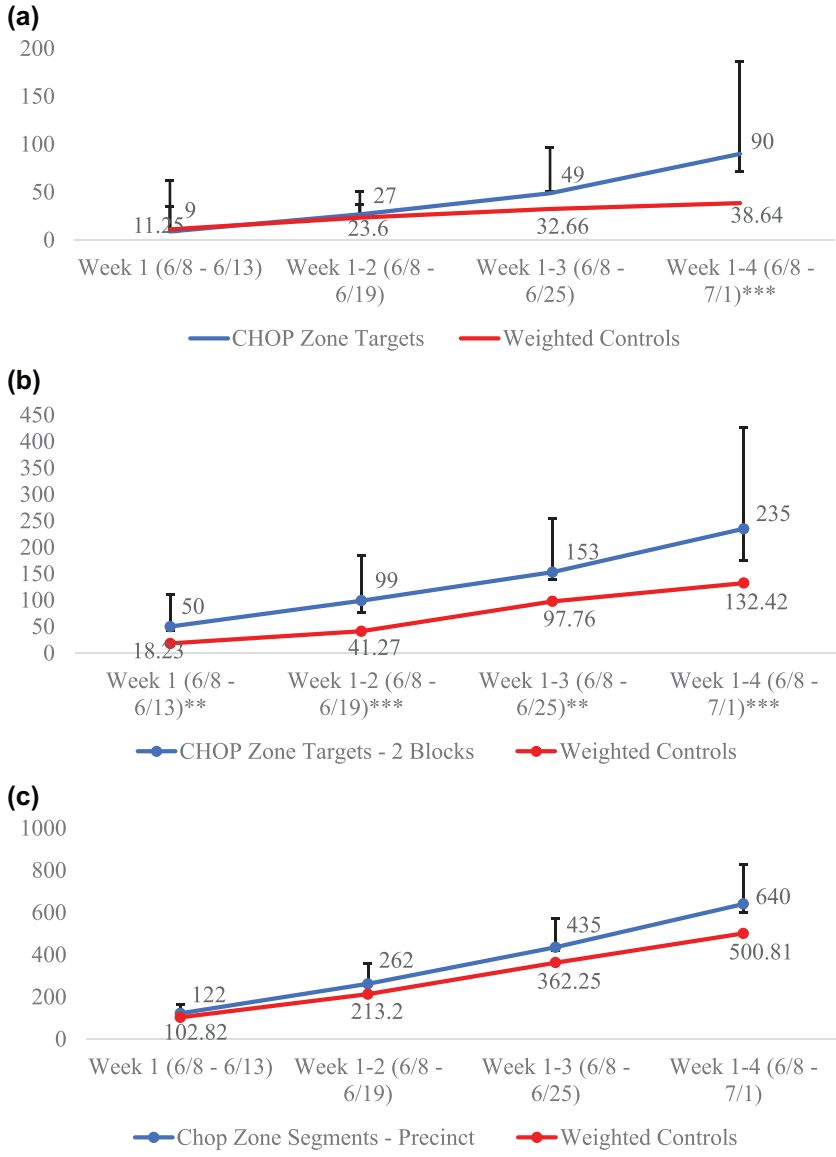

FIGURE 2 Weekly crime change estimates for the CHOP zone (a), two-block zone (b), and precinct service area (c) [Color figure can be viewed at wileyonlinelibrary.com]

zone and precinct service area. In the CHOP zone, a statistically significant crime increase was not observed until the 4th week (beginning on day 19 of the postperiod). The crime increase achieved significance earlier in the two-block area, with an over 174% higher crime count as compared to the control area (50 incidents vs. 18.23 incidents) occurring from the end of week one. Significant crime increases were observed across each subsequent week in the CHOP zone two-block area. The crime increase achieved statistical significance in the East precinct service area during week 2, with a 22.9% increase in crime relative to the weighted controls (262 incidents vs. 213.20 incidents). Significant crime increases were also observed in week three and four in the East precinct

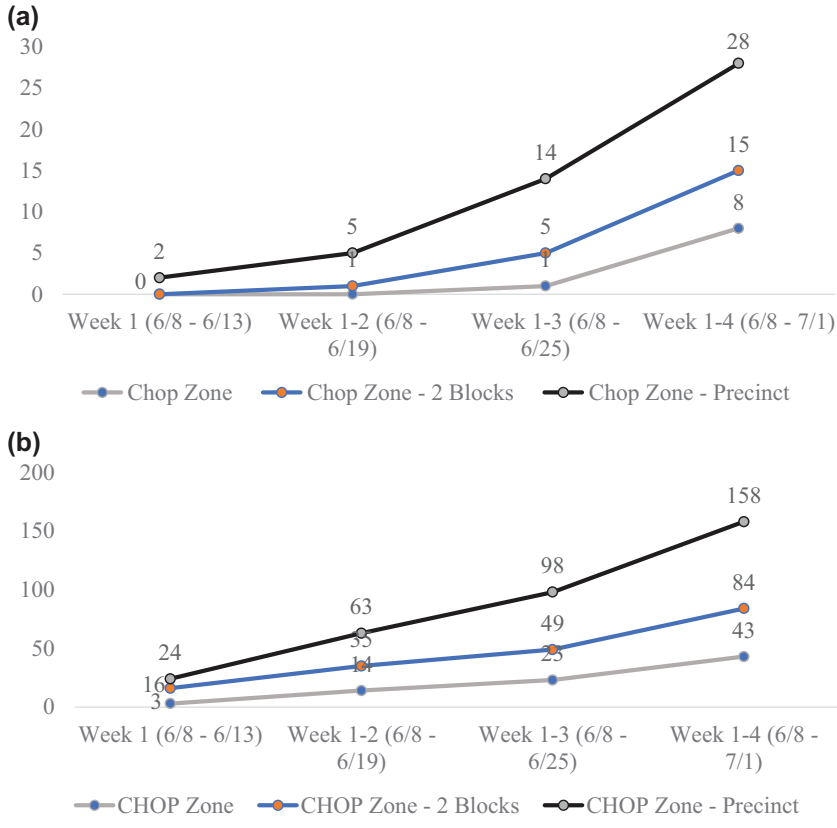

FIGURE 3 Weekly crime counts for crimes against society (a) and crimes against persons (b) [Color figure can be viewed at wileyonlinelibrary.com]

service area. All of the postperiod weekly results significantly differed from the random target application in the permutation analyses.[11]

We conclude our analysis by assessing whether any individual crime types disproportionately influenced the findings. As previously mentioned, the short time period of the occupation and the concise geography of the CHOP zone provided insufficient statistical power to include individual crime types in the microsynth analysis. Therefore, we present graphs of cumulative crime totals to visualize how each crime type progressed over time. We group crime incidents according to the broad categories used in the SPD data: crimes against society, crimes against persons, and crimes against property.

Figure 3 displays findings for crimes against society (e.g., disorder, narcotic offenses, weapon law violations) and crimes against persons (e.g., assault, robbery). In the two-block area and East precinct service area, incidents steadily increased over the 4-week period for both crime types. Somewhat different trends were observed for the CHOP zone. Crimes against persons showed a similar trend, with steady increases observed each week. Crimes against society, conversely, remained flat over the first 2 weeks in the CHOP zone, with a substantial increase beginning in week 3 (albeit low frequencies across each week).

Property crime findings are displayed in Figure 4, which displays counts for both overall crimes against property and Part I crimes against property. The separate typologies allow us to visualize

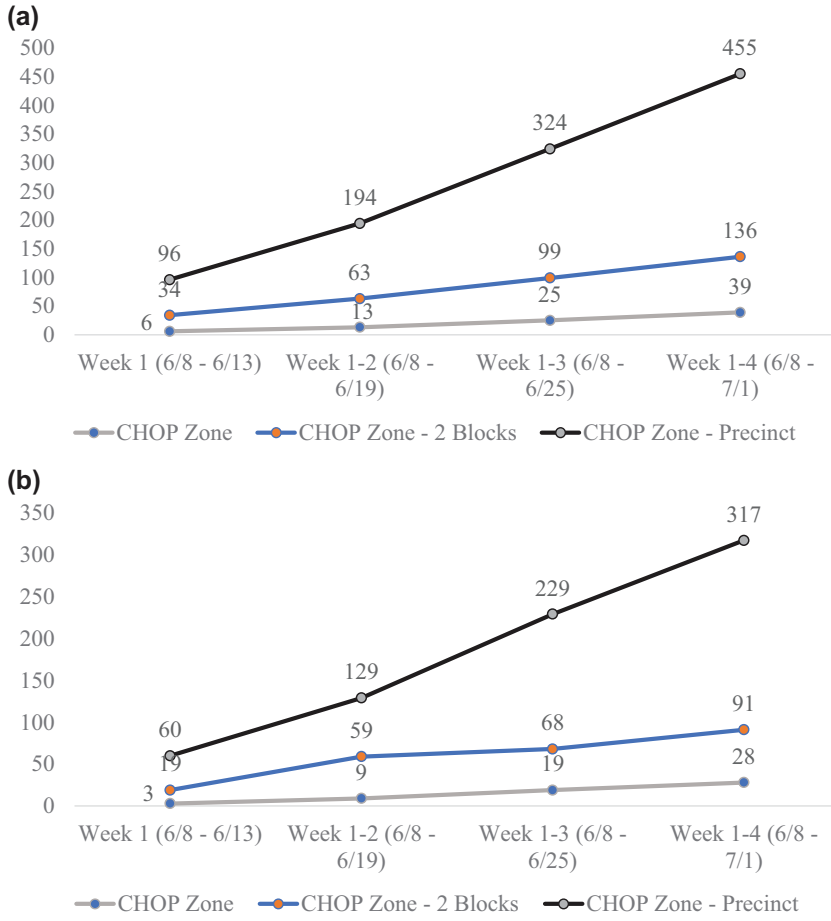

FIGURE 4 Weekly crime counts for overall crimes against property (a) and Part I crimes against property (b) [Color figure can be viewed at wileyonlinelibrary.com]

whether property crime trends differed across crime severity. Incidents steadily increased across all three intervention areas for both overall and Part I crimes against property. Given the findings displayed in Figures 3 and 4, we conclude that no single crime type was responsible for the significant crime increases detected in the statistical analysis.

3 | DISCUSSION AND CONCLUSION

Policing is in crisis, and reform is frankly long overdue in many respects. While many policing advocates painted Derek Chauvin as a "bad apple" it is also possible to view his actions as a microcosm of the issues plaguing policing. As Lum (2021, 20) argued, Chauvin's actions while killing Floyd demonstrate the severe limitations in the training, supervision, culture, tactics, and strategy that largely define policing. George Floyd's death calls out for systemic adjustments to the policing institution. Our study results have clear implications for public policy that may result from such reform efforts, as well as policing and crime control more generally.

By abandoning the precinct and agreeing to dramatically decrease levels of policing in the CHOP zone, the City of Seattle contributed to creating an environment ripe for sizeable crime increases. A more prudent solution would have been to more effectively engage with protestors to quell the violent activity. However, using aggressive militarized tactics can transform peaceful protests to violent clashes (Balko, 2013; Maguire & Oakley, 2020). As such, the SPD response to the protests, which involved deployment of crowd control weapons such as tear gas pellets (Ratcliffe, 2021a, 24:00–31:00), may have contributed to the uprising. Research has indicated incorporating tactics that adhere to principles of procedural justice and legitimacy may control crowds in a manner that minimizes risk of escalation by securing voluntary compliance from protestors (Maguire & Oakley, 2020). This is especially the case given that protest events rarely begin violent, but instead escalate over time. Nassauer (2016) noted that buildup of fear and tension and factors such as the police being outnumbered or police lines breaking down may transform peaceful protests into violent clashes. Police agencies facing large public protests may be able to prevent escalation by using effective crowd control tactics from the onset. However, we should note that the SPD decided to abandon the East precinct less than one hour following the decision to remove barricades from the front of the building (Ratcliffe, 2021a, 27:00–29:00). It is possible that SPD's current crowd control tactics may have sufficiently mitigated violence and property destruction had barriers remained in place. Nonetheless, our study points to the need for police agencies to increase their internal capacity for effective protest control. This is a key gap in current practice, as U.S. police agencies widely differ in terms of their preparedness for protest events (Maguire & Oakley, 2020).

The CHOP occupation represents, to our knowledge, the first manifestation of police abolition at the neighborhood level. The results from the CHOP zone suggest that significant crime increases can be expected within a timeframe as short as a 24-day period absent police even at especially microlocations. The significant crime increase is particularly noteworthy given the retreat of police from the area theoretically made it more challenging for crimes to be reported by citizens and/or proactively discovered by officers. The negative effects of police pull-backs in the CHOP zone were stronger than what has generally been observed in prior research. This may relate to the fact that most prior research has used formal enforcement activity—such as arrests or stops—to measure depolicing. While such measures reflect the actions police officers take in response to potential crime threats, research has shown that police can impact crime through their visual presence. A systematic review by Dau et al. (2021) identified 49 studies that quantified changes in physical police presence, with most ($n = 30$) reporting significant crime control effects. A recent study using AVL data to measure the precise location of patrol cars in Dallas, Texas found that a 10% decrease in police presence at a given location resulted in a 7% increase in crime (Weisburd, 2021). Furthermore, most research on depolicing analyzes modest changes in proactive policing (Cassell, 2020), leaving the effect of the types of dramatic reductions observed in the Seattle CHOP zone largely unexplored.

Results indicate that any attempts to reimagine public safety should involve the police. As argued by Koziarski and Huey (2021, 275) "…the police cannot be solely relied upon to address all social issues, but the police cannot—and ideally should not—be fully absolved of the responsibility either." Wide-scale adoption of evidence-based policing may provide a vehicle for meaningful, long-term reform (Koziarski & Huey, 2021). Decades of policing research highlight a portfolio of focused, proactive interventions that emphasize situational problem-solving in lieu of overly relying on aggressive law enforcement actions. The large-scale development, deployment, and institutionalization of evidence-based policing practices may (paradoxically) support the types of institutional reforms many have called for in the aftermath of George Floyd's murder.

Furthermore, there may be a way to reduce the footprint of policing in a manner conducive to focused, evidence-based policing efforts (Weisburd, 2011). As argued by Abt (2019, 200), violence prevention strategies can easily be both *evidence-informed* and *community-informed*.

Properly funding community institutions can pay significant dividends in promoting public safety, especially in the context of violence prevention (Sharkey, 2018). This is a motivating force behind some policy proposals advanced by the police-defunding movement: to take money away from the police to better fund alternative approaches to public safety. However, such an approach may not pay the types of dividends envisioned by police defunding advocates. Lehman (2021) demonstrated that policing accounts for only approximately 6% and 1% of state and local spending, respectively; as such, shifting resources from police to other government agencies may have little impact on the magnitude of social service spending. In light of the current study findings, as well as the larger literature, a prudent solution may be funding mechanisms that simultaneously support the evidence-based crime prevention work of police and community-based institutions (Abt, 2019) as well as enacting the types of housing and education policies that allow urban neighborhoods to thrive (Sharkey, 2018). Of course, the challenge lies in finding such a funding mechanism. While engaging in such an exploration lies outside the scope of this study, we note that federal funding has previously led to a number of practices—such as community policing, body-worn cameras, and CCTV—becoming standard police practices over recent decades.

We are hopeful that similar commitment and funding can help drive the next wave of police reform, especially considering the cost effectiveness of some large-scale violence prevention proposals. Abt (2019) demonstrated such cost effectiveness in the context of urban gun violence. According to Abt's (2019, 206–208) calculations, devoting as much as $30,000 per homicide per year to violence prevention work would be strikingly affordable, amounting to less than 0.5% of the annual budget for high-crime cities such as Chicago and Baltimore. Given the high direct and indirect costs associated with gun violence, a crime reduction would not just offset the initial monetary investment but generate hundreds of millions of dollars in cost savings. Every dollar spent on a national-level initiative that achieves a 10% annual reduction in gun violence, for example, would generate $135 in cost savings (Abt, 2019).

Despite the implications of the current study, we note specific limitations that deserve mention. The short time period and concise geography of the CHOP area presented some challenges with our ambitious quasi-experimental design. Given such, the CHOP zone had a near equivalent pre-CHOP cumulative crime count as its weighted control area, but crime totals slightly differed across some of the 62 six-day pre-CHOP time periods. While near-equivalence allows for comparable control conditions and is what's achieved via alternate matching approaches like propensity score matching, an empirically identical control area would have provided a more rigorous counterfactual to the CHOP occupation. However, we feel that even with these challenges the microsynth approach was better than our alternatives, which included measuring crime in the intervention area absent a control or arbitrarily (rather than empirically) selecting another area of Seattle as the control. In the former case, our analysis would have fallen below the minimum thresholds needed to determine causality (similar to the research on police strikes; Sherman & Eck, 2002) while in the latter case the control area would have been less comparable that what was achieved in the current study. Nonetheless, we encourage social scientists to improve upon our methodology in natural experiments testing the effect of police presence (or the drastic reduction of such) on crime moving forward.

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NOTES

[1] See https://sal-urichmond.hub.arcgis.com/apps/Reminders::george-floyd-protests/about

[2] However, we should note that certain practices highlighted in the John Jay report may not operate in complete isolation of the police. In particular, a majority (64.5%) of closed-circuit television (CCTV) surveillance camera systems included in the most recent systematic review and meta-analysis were at least partially operated by police agencies (Piza et al., 2019; Welsh et al., 2020).

[3] https://data.seattle.gov/. Point-level homicide data were obtained via an official request to the SPD due to these incidents not having *x*, *y* coordinates in the open data portal.

[4] See Table A1 in the Appendix for a list of NAICS codes used to identify and extract consumer-facing businesses.

[5] https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html

[6] All covariates achieved exact matches in the two-block and precinct service area matching models. The CHOP Zone only model demonstrated slight variation in the covariates across the targets and controls. Though, the near equivalence allowed group balance to be achieved. The Appendix includes full matching results for each target area delineation.

[7] See the Appendix for the full matching table, showing the target and control results across each 6-day period.

[8] The Aappendix includes common figures associated with microsynth matching calls that demonstrate matching efficacy. The figures depict trend lines for target and control groups that are exactly equal before the "intervention" starts. However, these figures were not included in text to prioritize other evidence of effective matching, including the tables and written description. The trend figures are less intuitive to interpret visually as compared to similar figures in prior microsynth studies due to the high number of time periods utilized in the design. The low frequency of pretarget crime levels also creates a high degree of volatility in trend patterns, rendering the figures less useful to the eye in evaluating the matching.

[9] See Tables A1 and A2 in the Appendix for a breakdown of the crime types and incident frequencies during the study period in Seattle and during the CHOP period across the target areas.

[10] Code and data to replicate the analysis are available at: https://bit.ly/sea-chop.

[11] Trend figures depicting the postperiod results across targets and weighted controls relative to the permutation are available in the Appendix. Due to the number of time periods operationalized, and the low frequency of crime counts, the figures are less visually intuitive to interpret than the tabular results.

CONFLICT OF INTEREST

The authors confirm that they have no conflict of interest to declare.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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Papachristos, A., Braga, A., **Piza, E.,** and Grossman, L.* (2015). The Company You Keep? The Spillover Effects of Gang Membership on Individual Gunshot Victimization in Social Networks. *Criminology, 53*(4): 624-649.

Piza, E., Caplan, J., Kennedy, L., and Gilchrist, A.* (2015). The Effects of Merging Proactive CCTV Monitoring with Directed Police Patrol: A Randomized Controlled Trial. *Journal of Experimental Criminology, 11*(1): 43-69.

Salvemini, A., **Piza, E.**, Carter, J., Grommon, E., and Merritt, N. (2015). Integrating Human Factors Engineering and Information Processing Approaches to Facilitate Evaluations in the Criminal Justice Technology Research. *Evaluation Review, 39*(3): 308-338.

Shane, J., **Piza, E.,** and Mandala, M.* (2015). Situational Crime Prevention and Worldwide Piracy: A Cross-Continent Analysis. *Crime Science, 4*(1): 1-13.

Caplan, J., Kennedy, L., Barnum, J.* and **Piza, E.** (2015). Risk Terrain Modeling for Spatial Risk Assessment. *Cityscape: A Journal of Policy Development and Research, 17*(1): 7-16.

Caplan, J., Marotta, P.*, **Piza, E.,** and Kennedy, L. (2014). Spatial Risk Factors of Felonious Battery to Police Officers. *Policing: An International Journal of Police Strategies & Management, 37*(4): 823-838.

Piza, E., Caplan, J. and Kennedy, L. (2014). Analyzing the Influence of Micro-Level Factors on CCTV Camera Effect. *Journal of Quantitative Criminology, 30*(2): 237-264.

Piza, E., Caplan, J. and Kennedy, L. (2014). Is the Punishment More Certain? An Analysis of CCTV Detections and Enforcement. *Justice Quarterly, 31*(6): 1015-1043.

Moreto, W.*, **Piza, E.,** and Caplan, J. (2014). A Plague on Both Your Houses? Risks, Repeats, and Reconsiderations of Urban Residential Burglary. *Justice Quarterly, 31*(6): 1102-1126.

Piza, E. and O'Hara, B. (2014). Saturation Foot Patrol in a High-Violence Area: A Quasi-Experimental Evaluation. *Justice Quarterly, 31*(4): 693-718.

Boxer, P., Sloan-Power, E., **Piza, E.,** and Schappell, A.* (2014). Using Police Data to Measure Children's Exposure to Neighborhood Violence: A New Method for Measuring Children's Exposure to Violence and Evaluation Relations Between their Exposure and Mental Health. *Violence and Victims, 29*(1): 24-33.

Caplan, J., Kennedy, L., and **Piza, E.** (2013). Joint Utility of Event Dependent and Contextual Crime Analysis Techniques for Violent Crime Forecasting. *Crime & Delinquency, 59*(2): 243-270.

Kennedy, L., Caplan, J. and **Piza, E.** (2011). Risk Clusters, Hotspots, and Spatial Intelligence: Risk Terrain Modeling as an Algorithm for Police Resource Allocation Strategies. *Journal of Quantitative Criminology, 27*(3): 339-362.

- ***Books***

Piza, E. and Welsh, B. (eds.) (2022). *The Globalization of Evidence-Based Policing: Innovations in Bridging the Research-Practice Divide*. Abingdon, Oxon, UK: Routledge Press.

Piza, E. and Baughman, J. (2021). *Modern Policing using ArcGIS Pro*. Redlands, CA: Esri Press.

Kennedy, L., Caplan, J., and **Piza, E.** (2018). *Risk-Based Policing: Evidence-Based Crime Prevention with Big Data and Spatial Analytics*. Oakland, CA: University of California Press.

- ***Scholarly Monographs (Non-Refereed)***

Piza, E. (2021). Bentham on crime analysis and evidence-based policing. In Jacques, S. and Schofield, P. (eds.) *Jeremy Bentham on Police. The Unknown Story and What it means for Criminology.* London, UK: UCL Press.

Piza, E. (2019). *Police Technologies for Place-Based Crime Prevention. Integrating Risk Terrain Modeling for Actionable Intel.* Issues in Spatial Analysis Series, Volume 1. Newark, NJ: Rutgers Center on Public Security. Available at http://www.rutgerscps.org/police-technologies-book.html

Piza, E., Welsh, B., Farrington, D. and Thomas, A.* (2018). *CCTV and Crime Prevention: A New Systematic Review and Meta-Analysis.* Report Prepared for the Swedish National Council for Crime Prevention. Available at https://bra.se/bra-in-english/home/publications/archive/publications/2018-06-12-cctv-and-crime-prevention.html

Caplan, J., Kennedy, L., **Piza, E.,** Marotta, P.* (2014). Risk Terrain Modeling for Strategic and Tactical Action. *Crime Mapping & Analysis News: A Police Foundation Publication. Issue 1.*

Piza, E. (2012). *Using Poisson and Negative Binomial Regression Models to Measure the Influence of Risk on Crime Incident Counts.* Newark, NJ: Rutgers Center on Public Security.

Kennedy, L., Caplan, J., and **Piza, E.** (2012). *A Primer on the Spatial Dynamics of Crime Emergence and Persistence.* Rutgers Center on Public Security: Newark, NJ

Caplan, J., Kennedy, L., **Piza, E.,** and Kim, E.* (2012). *Vacant Properties and Gun Shootings: Empirical Validation of a Core Assumption of the Kensington Renewal Initiative.* Newark, NJ: Rutgers Center on Public Security.

Braga, A., Grossman, L.*, and **Piza, E.** (2011). *Understanding serious violence in Newark, New Jersey.* Unpublished working paper. Newark, NJ: Rutgers University, School of Criminal Justice.

Piza, E., Kennedy, L. and Caplan, J. (2011). Police Resource Allocation. In Caplan, J. and Kennedy, L. (Eds.) *Risk Terrain Modeling Compendium.* Newark, NJ: Rutgers Center on Public Security

- ***Technical Reports***

Piza, E., Connealy, N., Sytsma, V. and Chillar, V. (2021). *Police Use of Force as a Transactional Event: A Video Systematic Social Observation and Panel Regression Analysis.* Report submitted to the Charles Koch Foundation in partial fulfillment of Criminal Justice & Police Reform grant awarded to John Jay College of Criminal Justice.

Sytsma, V., **Piza, E.,** and Chillar, V.* (2020). *Reporting Descriptive Statistics for the Project Identifying Situational Determinants of Police Use of Force: A Systematic Social Observation of Body Camera*

Footage in Newark, NJ. Report submitted to the Charles Koch Foundation in partial fulfillment of Criminal Justice & Police Reform grant awarded to John Jay College of Criminal Justice.

Chillar, V.*, **Piza, E.,** and Sytsma, V. (2020). *Conducting Systematic Social Observations of Body-Camera Footage to Understand Police Use of Force: Methodological and Practical Insights.* Report submitted to the Charles Koch Foundation in partial fulfillment of Criminal Justice & Police Reform grant awarded to John Jay College of Criminal Justice.

Piza, E., Feng, S.* and Connealy, N.* (2017). *An Evaluation of the Newark Police Department's Downtown Sub-Station: A Propensity Score Analysis.* Final report submitted to the Professional Staff Congress-City University of New York in partial fulfillment of award number 68767-00 46.

Carter, J., **Piza, E.**, Grommon, E., Salvemini, A., Harris, P., and Frantz, F. (2016). *An Exploration of the Impacts of Utilizing Broadband-Enabled Over-the-Air-Programming of Portable Land Mobile Radios.* Final report submitted to the National Institute of Justice in partial fulfillment of award number 2010-IJ-CX-K023.

Piza, E., Caplan, J. and Kennedy, L. (2013). *Detection of Crime, Resource Deployment, and Predictors of Success: A Multi-Level Analysis of CCTV in Newark, NJ.* Final report submitted to the National Institute of Justice in partial fulfillment of award number 2010-IJ-CX-0026.

GRANT AND FUNDING SUPPORT

- ***External Awards***
  - ***$2,824,985 in total***

2022-2023 ***Principal Investigator: City of Paterson, NJ Police Department ($93,728)***
-Analytical Assistance to the Coalition for Opioid Response and Assessment

2020-2022 ***Principal Investigator: National Institute of Justice, Investigator-Initiated Research and Evaluation on Firearm Violence ($503,129) [2019-R2-CX-0004]***
-The Impact of Gunshot Detection Technology on Gun Violence in Kansas City and Chicago: A Multi-Pronged Synthetic Control Evaluation

2020-2021 ***Principal Investigator: City of Paterson, NJ Police Department ($146,851)***
-Developing and Evaluating a Data-Driven Approach to Address the Opioid Epidemic

2020-2021 ***Co-Principal Investigator: U.S. Department of State ($306,720)***
-Western Hemisphere Regional Transnational Crime Assessment and Analysis

2019 - 2020 ***Principal Investigator: Charles Koch Foundation, Criminal Justice & Policing Reform Program ($110,000)***
-Identifying Situational Determinants of Police Use of Force: A Systematic Social Observation of Body Camera Footage in Newark, NJ

2018 - 2020 ***Co-Principal Investigator: Bureau of Justice Assistance, Body-Worn Camera Policy and Implementation Program [2017-BC-BX-0045] ($496,920)***
- Newark Public Safety Department Body-Worn Camera Enhancement Project

2017 - 2018 ***Co-Principal Investigator: The Swedish National Council for Crime Prevention (Brå) (£11,250)***
- The Effect of CCTV on Crime and Perceptions of Safety: An Updated Systematic Review and Meta-Analysis

2014 - 2017 ***Co-Principal Investigator: National Institute of Justice, Testing Geospatial Predictive Policing Strategies [2013-IJ-CX-0053] ($461,384)***
- Policing by Place: A Multi-Level Analysis of the Effectiveness of Risk Terrain Modeling for Allocating Police Resources in New York City

2013 - 2015 ***Co-Principal Investigator: National Institute of Justice, Testing Geospatial Police Strategies and Exploring their Relationship to Criminological Theories [2012-IJ-CX-0038] ($499,633)***
- A Multi-Jurisdictional Test of Risk Terrain Modeling and a Place-Based Evaluation of Environmental Risk-Based Patrol Deployment Strategies

2011 - 2013 ***Co-Principal Investigator (for Newark Police Department): National Institute of Justice, Research on Policing [2010-IJ-CX-0026] ($188,620)***
- Detection of Crime, Resource Deployment, and Predictors of Success: A Multi-Level Analysis of CCTV in Newark, NJ

2010 ***Association of Doctoral Programs in Criminology & Criminal Justice Dissertation Award ($3,000)***
-Project Title: Identifying the Best Context for CCTV Camera Deployment: An Analysis of Micro-Level Features

- ***Internal Awards***
  - ***$33,104 in total***

2019 ***PSC-CUNY Enhanced Research Award, Cycle 50 ($11,520)***
-Project Title: Exploring Police Decision Making Through a Systematic Social Observation of Police Officer Body Camera Footage in Atlantic City, NJ

2018 ***PSC-CUNY Traditional B Research Award, Cycle 49 ($5,948)***
-Project Title: A Quasi-Experiential Evaluation of the Effects of Gunshot Detection Technology on Investigations of Gun Crimes in Kansas City, MO

2018 ***John Jay College, Office of the Advancement of Research Seed Funding Program ($1,912)***
-Project Title: Early Data Collection/Participant Solicitation Efforts for an Evaluation of the Kansas City Police Department's Gunshot Detection System

2017 ***PSC-CUNY Traditional B Research Award, Cycle 48 ($5,272)***
-Project Title: Using Camera Footage to Analyze Surveillance Operator Discretion During a Targeted Police Intervention

2015 ***PSC-CUNY Traditional B Research Award, Cycle 46 ($5,953)***
-Project Title: An Evaluation of the Newark Police Department's Downtown Community Resource Center

2012 ***Rutgers School of Criminal Justice Dean's Research Award ($2,499)***
-Award Recipient: annual award providing financial support for a research project proposed by a current student enrolled in the Rutgers School of Criminal Justice's doctoral program.
-Project Title: Drug Market Norms and Behaviors: A Qualitative Analysis of Street-Level Narcotics Transactions

TEACHING EXPERIENCE[**]

- ***University Courses***

2013 - Present ***John Jay College of Criminal Justice***
-Classes Taught: Capstone Seminar for BS in Criminal Justice (UG); Communities & Crime (UG); Crime Mapping (G); Crime Control & Prevention (UG); Criminal Justice Theory in Practice (UG); Research Methods and Statistics

[**]UG=Undergraduate Course; G=Graduate Course

for Criminal Justice (UG); Survey of Criminal Justice Process and Policy: I & II (G)
-*Classes Developed:* Evidence-Based and Problem-Oriented Policing (UG); Communities & Crime (UG)

2012 - 2013 ***Rutgers University, School of Criminal Justice***
-*Classes Taught:* Data Analysis in Criminal Justice (UG)
-*Training Seminars Taught:* GIS Mapping for Public Safety; Targeting Violent Crime Initiative Spatial Analysis Course (Organized by the NJ Attorney's Office); Risk Terrain Modeling Workshop (Online Course; Teaching Assistant)

2005 - 2009 ***Rutgers University, School of Criminal Justice***
- *Classes Taught:* Contemporary Problems in Policing (UG); Data Analysis in Criminal Justice (UG); Police and the Community (UG); Police Problem Solving (UG)

- ***Professional Training Seminars***

2018-Present ***New York State Division of Criminal Justice Services***
- *Training Seminars Taught*: ArcGIS Pro for Crime Analysis (Albany, NY (x2); Rochester, NY; Suffolk County, NY; Online (x2))

2020 - Present ***John Jay College of Criminal Justice***
- *Training Seminars Taught*: ArcGIS Pro for Crime Analysis (Online (x2))

2012 - 2013 ***Rutgers University, School of Criminal Justice***
-*Training Seminars Taught:* GIS Mapping for Public Safety; Targeting Violent Crime Initiative Spatial Analysis Course (Organized by the NJ Attorney's Office)

2010 - Present ***International Association of Crime Analysts***
-*Training Seminars Taught:* Crime Mapping and Analysis (Albany, NY; College Park, MD; Landover, MD; Newark, NJ; New York City, NY(x3); Romeoville, IL)

AWARDS AND HONORS

2021 ***John Jay College Scholarly Excellence Award***
-Award Recipient: annual award given to select faculty members for outstanding scholarly contribution in the preceding three years

2021 ***Diverse: Issues in Higher Education Emerging Scholars***
-Award recipient: annual recognition of an interdisciplinary group of minority scholars who are "changing our institutions and higher education for the better"

2017 ***American Society of Criminology Division of Policing Early Career Award***
-Award recipient: annual award recognizing outstanding scholarly contributions to the field of policing by someone who has received his or her Ph.D. degree within the last five years.

2016 ***John Jay College Scholarly Excellence Award***
-Award Recipient: annual award given to select faculty members for outstanding scholarly contribution in the preceding three years

2015 ***John Jay College Donal E. McNamara Award***
-Award Recipient: annual award given to a junior faculty member for outstanding scholarly contribution in the preceding two years to the fields of criminal justice or criminology.

2010 ***Newark Police Department Civilian Award***
-Civilian Award Recipient: annual award issued during Police Week in recognition of the service and dedication of a civilian member of the police department

2003-2004 Rutgers University: Ronald E. McNair Post-Baccalaureate Achievement Program Scholar

SELECT INVITED ADDRESSES

2021 ***American Society for Public Administration, Section on Emergency and Crisis Management: Police Violence, Crises, and Trust in Government Actors in Times of Emergency and Disaster***
Panel Discussant
Co-Discussants: Tami Abdollah (USA Today), Curtis Brown (Virginia Department of Emergency Management)

2021 ***New York City Police Department Office of Strategic Initiatives, Research Committee Meeting***
Presentation: Officer Tactics in Crime Hot Spots: Adding "What" to the Question of "*Where"*

2021 ***State of New York Division of Criminal Justice Services, Law Enforcement Webinar Series***
Presentation: Producing an Operational Hot Spot Map
Co-Presenter: Andrea Vey

2020 ***The Institute for Global City Policing Dealing with Violence Conference: London, England, UK***
Plenary Session: Preventing Violence by Contextualizing High-Crime Places. Leveraging Modern Tools to Solve Modern Problems

2019 ***TrygghetNU (Safety Now) Conference: Stockholm, Sweden***
Keynote Address: CCTV Surveillance for Crime Prevention. A 40-Year Systematic Review with Meta-Analysis
Co-Presenters: Brandon C. Welsh, David P. Farrington & Amanda L. Thomas

2019 ***State of New York Division of Criminal Justice Services, Data-Driven Decision Making Symposium: Albany, NY***
Plenary Session: Identifying Micro-Level Crime Hot Spots Using ArcGIS Pro: Applied Tools for Crime Analysts

2018 ***Swedish National Council for Crime Prevention Annual Conference: Orebro, Sweden***
Keynote Address: The Effectiveness of CCTV for Crime Prevention. Implications for Public Policy

2018 ***State of New York Division of Criminal Justice Services, Data-Driven Decision Making Symposium: Albany, NY***
Plenary Session: How to Improve Police-Led Science. Crime Analysts as the missing link

2017 ***Newark Downtown District Public Safety Board Meeting: Newark, NJ***
Presentation: An Evaluation of the Downtown Newark Community Resource Center
Co-Presenters: Shun Q. Feng & Nathan T. Connealy

2017 ***Crime & Justice Research Alliance and Consortium of Social Science Associations: Congressional "Ask a Criminologist" Series. New Police Technologies: Washington, DC***
Panel Discussant
Co-Discussants: Nancy La Vigne, Cynthia Lum, & Eddie Reyes.

2017 ***Trygghetskamerans dag 2017 (2017 Security Camera and Public Safety Day) Conference: Stockholm, Sweden***
Keynote Address: Does CCTV Prevent Crime? Simple Questions, Complex Answers, and Implications for Public Policy

2016 ***Uruguay National Police Scholarship Program: New York City, NY***
Presentation: Crime Hot Spots, Generators, and Attractors: The Role of Investigators in Place-Based Policing

2015 ***Fayetteville Police Department, Office of the Chief of Police: Fayetteville, NC***
Presentation: Precinct-Specific Crime Forecasting for Focused Policing

2015 ***Rutgers University School of Criminal Justice, 40th Anniversary Symposium: Newark, NJ***
Panel Discussion: The Future of Evidence-Based Crime Policy

2014 ***State of New York Division of Criminal Justice Services, Gun Involved Violence Elimination Symposium: Saratoga Springs, NY***
Presentation: Risk Terrain Modeling and Hot Spots Policing
Co-Presenters: Joel M. Caplan & Leslie W. Kennedy

2014 ***Carabineros de Chile (The National Police Force of Chile), International Summit on Crime Analysis: Santiago, Chile***
Plenary Session: Risk Terrain Modeling for Public Safety: Implications and Applications in Contemporary Policing
Co-Presenters: Leslie W. Kennedy & Joel M. Caplan

2013 ***John Jay College of Criminal Justice, Committee on Graduate and Evening Services' Crime Analysis Symposium: NYC, NY***
Presentation: The Crime Analyst's Role in Designing and Evaluating Police Interventions. A Case Study

2012 ***Chicago Police Department, Office of the Superintendent: Chicago, IL***
Presentation: Risk Analysis, Strategic Policing, and the "Predictive" Use of Spatial Data

2011 ***Toronto Police Service: Online Presentation***
Presentation: Operationalizing and Assessing the Spatial Influence of Environmental Features on Crime
Co-Presenter: Joel M. Caplan

2011 ***Ontario Crime Analyst Network: Online Presentation***
Presentation: Analyzing Crime Risk to Guide Crime Prevention

2009 ***University of Scranton: Scranton, PA***
Presentation: GIS in Law Enforcement. Problem Solving Analysis of the Newark Police Department

SERVICE

- **To the Advancement of the Academic Profession**

Journal Manuscript Reviewer:

Journal	Reviews	Journal	Reviews
American Journal of Criminal Justice	*1*	*Journal of Experimental Criminology*	*7*
Annals of the American Academy of Political & Social Science	*1*	*Journal of Quantitative Criminology*	*9*
Applied Geography	*2*	*Journal of Research in Crime & Delinquency*	*14*
Asian Journal of Criminology	*1*	*Justice Evaluation Journal*	*2*

Canadian Journal of Criminology & Criminal Justice	*1*	*Journal of Policy Analysis and Management*	*2*
Crime & Delinquency	*2*	*Justice Quarterly*	*13*
Criminology	*18*	*Papers in Applied Geography*	*1*
Criminology & Public Policy	*4*	*Police Practice & Research*	*2*
Criminal Justice Review	*1*	*Policing, An International Journal*	*3*
Crime Science	*2*	*Policing, A Journal of Policy & Practice*	*2*
European Journal on Criminal Policy & Research	*2*	*Policing & Society*	*3*
Evaluation & Program Planning	*1*	*PLOS One*	*1*
International Criminal Justice Review	*1*	*Police Journal*	*1*
International Journal of Comparative and Applied Criminal Justice	*1*	*Police Quarterly*	*4*
International Journal of Forecasting	*1*	*Population and Environment*	*1*
International Journal of Offender Therapy and Comparative Criminology	*2*	*Security Journal*	*1*
Journal of Community Psychology	*1*	*Spatial Demography*	*1*
Journal of Criminal Justice	*14*	*Sociological Methods & Research*	*1*
Journal of Crime and Justice	*2*	*Social Science Research*	*1*

Editorial Board Member:
Criminology: *Spring 2021-Present*
Journal of Criminal Justice: *Summer 2020-Present*
Journal of Research in Crime and Delinquency: *Spring 2017-Present*
Police Practice & Research: *Fall 2020-Present*

Crime and Justice Research Alliance: ***Fall 2015-Present***
Subject Matter Expert
-Crime Mapping, Spatial Analysis, Compstat, Problem-Oriented Policing

American Society of Criminology, Division of Policing ***Fall 2018***
-Awards Committee Member